CLAIMS

1. A safety coupling arrangement (10) comprising a coupling part (11), that can be adapted for fixed co-action with a shaft, axle or the like, that functions to transfer torque and rotary movement to said safety coupling, and a further coupling part (12), which is adapted for fixed co-action with a shaft, axle or the like to transfer torque and rotational movement from the safety coupling, and further including a safety unit (13), wherein said safety unit is adapted to take one of two settings, a first setting, in which torque and rotary movement can be transferred between said two coupling parts (11, 12) and a second setting, in which no torque and rotational movement can be transferred between said two coupling parts, wherein said safety unit (13) includes a subpart or a body (13') that can take said first setting as a result of an expansion caused by applying pressure to a cavity (13a) within the safety unit (13) and enclosing said pressure in said cavity, and is able to take its second setting by evacuating said pressure from said cavity (13a), **characterised** in that a first coupling part (11) or a second coupling part (12) includes an axially directed, or generally axially directed, groove (12a), in that said groove (12a) is adapted to be able to surround a pressure expandable subpart (13'; 13b, 13b') in said safety unit (13) and the whole, or essentially the whole, of said cavity (13a), and in that said expandable subpart (13'), when in its first setting, functions to allow torque to be transferred directly to said first coupling part (11) or said second coupling part (12) via two mutually opposing surface parts (13c, 13d), which are frictionally active against opposing outer parts (12b, 12c) of the axially directed groove (12a).

2. An arrangement according to Claim 1, **characterised** in that said one or said other coupling part (12) includes a collar (12d), which is centred or essentially centred with respect to, said axially directed groove (12a).

3. An arrangement according to Claim 2, **characterised** in that said collar (12d) is integrated with said one coupling part or said other coupling part.

4. An arrangement according to Claim 1, 2 or 3, **characterised** by an outer radial groove (12g), formed between a flange (12e) and said collar (12d), said flange belonging to one or the other coupling part.

5. An arrangement according to Claim 4, **characterised** by that a thin material section (12f) is formed in said one or said other coupling part, between said outer radial groove (12g) and said axially directed groove (12a) of said safety unit.

6. An arrangement according to Claim 5, **characterised** in that said thin material section (12f) is elastically resilient.

7. An arrangement according to Claim 1, **characterised** in that said safety unit (13) is integrated with and constitutes said first coupling part (11) or said second coupling part and includes a flange (11e) for fixed co-action with the torque transferring shaft (11') connected to the safety coupling.

8. An arrangement according to Claim 1, **characterised** by a pressure medium filling nipple (14), such as oil, which extends radially out from the safety unit (13) and is positioned in connection with said one coupling part or said other coupling part and its collar (12d).

9. An arrangement according to Claim 1 or 8, **characterised** by a device (15), which is fixed in relation to said collar (12d), which co-acts with or is able to co-act with said filling nipple (14) such that a small relative movement between said first coupling part and said second coupling part and said safety unit will cause the filling nipple to shear, for a rapid evacuation of said pressure.

10. An arrangement according to Claim 1 or 5, **characterised** by a first ball bearing ring (16) placed at the bottom of the safety unit groove for co-action between said safety unit and said groove.

11. An arrangement according to Claim 1, 2, 5 or 10, **characterised** by a second ball bearing ring (17) placed adjacent an opening of said safety unit groove for co-action between the safety unit and said groove.

12. An arrangement according to Claim 1, **characterised** in that said axially directed groove (12a) has a conical cross-sectional shape with the widest part facing towards an adjacent part.

13. An arrangement according to Claim 1 or 12, **characterised** in that the cross-sectional shape of said subpart (13') and its sections (13b, 13b') has a corresponding conical shape.

14. An arrangement according to Claim 1, 12 or 13, **characterised** in that said axially directed groove and said corresponding sections (13b, 13b') have a stepped cross-sectional shape with the widest part facing towards an adjacent part.

15. An arrangement according to Claim 1, **characterised** in that the free end portions of the material sections or the legs forming said axially directed groove (12a) are co-ordinated with locking means (110) provided there between and adapted to prevent any divergence of said free end portions when the safety unit (13), together with its associated subpart or body (13'), takes its first and expanding setting.

16. An arrangement according to Claim 15, **characterised** in that said first coupling part (11) and said second coupling part (12) are mutually adapted to include mutually overlapping and co-ordinated cylindrical subsections (124, 111) on a respective side of an axially directed groove (12a).

17. An arrangement according to Claim 16, **characterised** in that said first coupling part (11) includes two axially directed edges (112, 113), each adapted for co-action with a respective groove (126, 127) formed in the second coupling part (12).

18. An arrangement according to Claim 16 or 17, **characterised** in that said edges (112, 113) are related peripherally to said first coupling part (11), and in that said groove (126, 127) is formed peripherally in said second coupling part (12).

19. An arrangement according to Claim 16, **characterised** in that said subsection (124, 111) is adapted for torque transmission via axially orientated and cylindrical outer sections (115, 116; 128, 129).

20. An arrangement according to Claim 16 or 19, **characterised** in that the length of said outer sections and a normal pressure dependent on the chosen expansion of the expandable subpart (13') are adapted for a torque transfer of between 10 and 30% of the total torque transferred between said coupling parts (11, 12).

21. An arrangement according to Claim 20, **characterised** in that the chosen torque transfer is adapted to between 15 and 25%.

22. An arrangement according to Claim 1, 15, 16 or 20, **characterised** in that in that the axially directed groove (12a) has a length of more than 50% of the length of said expandable subpart (13').

23. An arrangement according to Claim 22, **characterised** in that said length is adapted to be less than 80% of the axial length of said expandable subpart (13').

24. An arrangement according to Claim 16, 17 or 18, **characterised** in that said overlapping subsections have the same, or essentially the same, radial thicknesses.

25. An arrangement according to Claim 15, 16 or 17, **characterised** in that, with regard to the overlapping subsections, the outer subsection has a greater thickness than the inner.

26. An arrangement according to Claim 15, **characterised** in that the first coupling part (11) is formed to function as a locking means against expansion of the free end portions of the legs forming said groove (12a) in the second coupling part (12).

27. An arrangement according to Claim 15 or 26, **characterised** in that the legs forming said groove (12a) have the same, or essentially the same, material thickness.

28. An arrangement according to Claim 1, 15 or 27, **characterised** in that the radius difference (D1) between the mutually opposing cylindrical outer parts (12b, 12c) of the groove (12a) is smaller than, equal to or essentially equal to the total radial thickness (D2, D3) of said free end portions or legs.